



Saskatchewan
Research Council

**SASKATOON SRC
CLIMATOLOGICAL REFERENCE STATION
ANNUAL SUMMARY, 1985**

by

**E.E. Wheaton
R.M. Begrand**

SRC Technical Report No. 181

Publication E-408-3-B-86

January, 1986

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ACKNOWLEDGEMENTS

The Saskatchewan Research Council (SRC) gratefully acknowledges the financial support of the Atmospheric Environment Service, Environment Canada, which supports in part the operations of the benchmark station through a contractual agreement.

The observing program owes much to the careful work of R. Begrand, R. Jahren, J. Ross, B. Smith and Fei, Qingpei. Fei, Qingpei came to the Saskatchewan Research Council from the Meteorological Bureau of Jiangsu Province, China, under the auspices of the World University Service of Canada's China/Canada Human Development Training Program. He contributed substantially to other projects at the Saskatchewan Research Council and University of Saskatchewan as well as the Climate Reference Station observing program.

Discussions with Mr. D.J. Bauer, officer-in-charge, and the staff of the Saskatoon Weather Office and K. Leek, Atmospheric Environment Service site inspection officer, have proven most helpful.

Technical drafting for this report was undertaken by Carlos Sardinha.

Darlene Diduck provided the word processing for this report.

Enquiries concerning the climatological reference station data and its measurement programs are welcome.

E.E. Wheaton, Research Scientist, Environment Division

ABSTRACT

Data concerning temperature, precipitation, soil temperature, evaporation, wind speed, bright sunshine and solar radiation at Saskatoon SRC (52°09'N, 106°36'W, 497 m MSL) are presented for the year 1985 and compared with the historic record.

Only a few months of the year had above normal mean monthly temperatures and seven months had below normal mean temperatures. June, September and November were particularly cold months with mean temperatures 2.6°C, 2.9°C and 9.9°C below normal. As a result the mean annual temperature also was below normal.

These conditions provided a poor thermal resource for agriculture. A late spring frost was followed by below normal growing degree days and a cool wet harvest. Positive aspects included a good spring snowmelt and above normal rainfall for part of the growing season.

Precipitation has been below normal since October, however, and much of the snow cover that did collect melted or blew away by December. These conditions resulted in a minimal snow cover by the end of the year.

In summary, much of the year was cold and dry interspersed with only a few warm and wet periods.

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HISTORY AND STATION LOCATION

The first meteorological observations appear to have been taken at or near Saskatoon by the Royal Northwest Mounted Police in 1889. At first only temperatures were recorded. There were a number of changes made in the coordinates and as a result there is some disagreement in the early records as to the exact location of the weather observing point. The bulk of the evidence, however, indicates that the location was 52 degrees 15 minutes north and 106 degrees 20 minutes west, elevation 480 m above sea level. This would place it at Clark's Crossing, on the South Saskatchewan River, approximately 10 miles north and east of the center of the present City of Saskatoon. At that time there was a settlement at Clark's Crossing and also about 10 or 15 families on either side of the river at Saskatoon.

Not too much is known about the early observers. However, the records show that a Major T.H. Keenan took the observations from March, 1892 until March, 1895. Mr. George Will was the observer from January, 1897 until April, 1897. It is thought that Thomas H. Copeland was involved in the observational program from 1895 to May 1, 1901, at which time it was taken over by Mr. Eby, senior. Continuous observations were taken by the Eby's at a site on 8th Street until October 31, 1942, when the station was closed. Mr. Eby continued the program until his death in 1921. His daughter, Miss E.S. Eby, recorded the observations until

April, 1931 and was replaced by her brother, J.M. Eby, who continued the program until the station was closed. The Eby station recorded temperature, precipitation and weather notes on fog, thunderstorms, winds and any unusual weather phenomena. Reports were made twice daily, morning and evening.

In 1916 a climatological station was established by the Physics Department of the University of Saskatchewan and continuous observations were kept twice daily until January 15, 1965. The long time observer at this site was Mr. Sidney Cox. The Saskatchewan Research Council took over the program in the fall of 1963 at our newly established Climatological Reference Station.

The location of the Saskatchewan Research Council's Climatological Reference Station is latitude $52^{\circ}09'N$ and longitude $106^{\circ}36'W$ and the elevation is 497 m above mean sea level.* The long time observer (16 years) at this present site was Mr. Joe Calvert, who retired from the program in August, 1983. The present regular observers are Ray Begrand, Rolf Jähren, Brett Smith and James Ross.

*From various sources including the Physical Environment of Saskatoon, Canada (E.A. Christiansen ed.) and 1974 Annual Meteorological Summary, Saskatoon, Saskatchewan, Environment Canada, Atmospheric Environment Service.

FOOTNOTES TO CLINATIC TABLES

- 1 The quantities recorded in this column of Table 1 are defined as the element value for the reported year minus the element value for the previous year. The 1985 Mean Annual Temperature was 1.1°C while the 1984 Mean Annual Temperature was 3.1°C , giving a difference of -2.0°C . In 1985 there were 198 days with frost, twelve fewer days than for 1984.
- 2 In climatology it is often useful to make spatial comparisons of particular element values over a common time period. At an interior continental site such as Saskatoon, a period of 30 years is required to produce statistically stable estimates of the more variable elements. To facilitate spatial comparisons, World Meteorological Organization currently recommends the standard period January 1, 1951 to December 31, 1980 for data analysis. Items in this column conform to this standard, except where noted. Extreme values in this column are the extremes recorded in the standard period at Saskatoon SRC.
- 3 Temporal comparisons at a point are also of value in some types of climatic studies. Therefore it is desirable to produce the maximum length of reliable climatic record to carry out studies over a period of time. Data in this column are drawn from the following data sets:

Saskatoon SRC	1964 to 1984
Saskatoon U. of S.	1916 to 1963
Saskatoon	1892 to 1915

Station locations, exposures and measurement procedures were subject to change during this time period. Data presented in this column are unadjusted and users are cautioned accordingly.

- 4 The Mean Annual Temperature is defined as the average of the Daily Mean Temperatures for one year. In the monthly summaries (Tables 2 to 13) the Daily Mean Temperature reported is the average of the Daily Mean Temperatures for one month under consideration. In turn, the Daily Mean Temperature for a particular day is defined as the arithmetic mean of the Daily Maximum Temperature and the Daily Minimum Temperature for the date. The Normal records used for comparison purposes are those published in Volume Two of the Atmospheric Environment Service publication "Canadian Climate Normals, 1951-1980, Temperature".

- 5 The Mean Maximum Temperature tabulated is the mean of the Daily Maximum Temperatures for one year in the case of Table 1 and for particular months in the cases of Tables 2 to 13. For details concerning measurement procedures, the reader is referred to the Atmospheric Environment Service publication Manual of Climatological Observations, second edition, January, 1978. The normal values are published in Volume Two of the Canadian Climate Normals (note 4).
- 6 The Mean Minimum Temperature as tabulated is defined as the mean of the Daily Minimum Temperatures averaged over the appropriate time periods. Refer to note 5 above concerning measurement procedures and normals.
- 7 The word Extreme refers to the highest or lowest value of a particular element recorded during the period in question. The highest temperature recorded at Saskatoon SRC during 1985 was 37.0°C while the highest value ever recorded at Saskatoon was 40.0°C (see Table 1).
- 8 A Day with Frost is recorded on each occasion when the Daily Minimum Temperature is equal to or less than 0°C.
- 9 A Heating Degree-Day (HDD) is an index of the heating requirement to achieve a stipulated comfort value in an indoor environment. For most purposes, a temperature of less than 18°C is considered uncomfortable and supplementary heating is required. On a specific day, the amount by which 18°C exceeds the Daily Mean Temperature defines the number of Heating Degree-Days for that day. Mathematically:

$$\text{HDD} = (18^{\circ}\text{C} - \bar{T}), \text{ for that day,}$$

where $\bar{T}$ = Daily Mean Temperature in °C
If $\bar{T}$ is equal to or greater than 18°C, HDD = 0.

Monthly and annual values of HDD are obtained by summing daily values. The normal used for comparison purposes is the adjusted normal published in the Atmospheric Environment Service publication Volume Four of the "Canadian Climate Normals, 1951-1980, Degree Days". The procedure used to adjust the means for stations with five to nineteen years of data is indicated in this volume. An adjustment is required to make the mean comparable to the thirty year normal.

- 10 In order for plant growth to proceed, air temperature must exceed a critical value appropriate to the plant species in question. For many members of the grass family, including most commercial cereals grown on the prairies, a base temperature of 5.0°C has been estab-

lished. On a specified day, the difference between the Daily Mean Temperature and the 5.0°C base temperature defines the number of Growing Degree-Days (GDD). Mathematically:

$$\text{GDD} = (\bar{T} - 5.0^{\circ}\text{C}), \text{ for that day,}$$

where $\bar{T}$ = Daily Mean Temperature in °C
If $\bar{T}$ is equal to or less than 5.0°C, GDD = 0.

Daily GDD values are summed to provide totals for the appropriate month, growing season or year. The normal value used for comparison is given in Volume Four of the "Canadian Climate Normals, 1951-1980, Degree Days".

- 11 Total precipitation is the sum of the daily rainfall and daily snowfall amounts recorded. The snowfall component of precipitation is recorded as an equivalent amount of liquid water. For particulars on precipitation measurement procedures and instruments, the reader is referred to the Atmospheric Environment Service publication Manual of Climatological Observations, second edition, January, 1978. The notation T in this column refers to a trace of precipitation (less than 0.2 mm water equivalent). The normal records used for comparison purposes are those published in Volume Three of the Atmospheric Environment Service publication "Canadian Climate Normals, Precipitation, 1951-1980".
- 12 Note that prior to 1960, measurement of snowfall was accomplished using snow rulers set vertically in the ground to obtain the thickness of the newly deposited layer. In obtaining precipitation values a standard water equivalent of one inch of snow yielding one-tenth inch of water was assumed. Since these measurements were inaccurate due to snow drifting, compaction and varying water equivalent, the Nipher snow gauge which actually catches snow has been employed at a number of stations (including Saskatoon) in more recent years.
- 13 A Precipitation Day is recorded on occasions when the amount of precipitation in a 24-hour period equals or exceeds 0.2 mm water (0.01 inch in English units). If both rain and snow occur on the same day, a snow day, a rain day and a precipitation day are all recorded. If only one form of precipitation occurs on a specified date, a precipitation day, a rain day or a snow day are recorded appropriately. Beginning in 1974, observations at Saskatoon SRC refer to the Calendar day. Previous to 1974, the so-called climatological day, beginning at 9 a.m. standard time on the date of reference and ending at 9 a.m. the next morning, was employed in record-keeping. An asterisk (*) appearing in the Normal column

denotes the occurrence of measureable precipitation on one or more occasions but the 30-year mean when calculated amounts to less than a trace.

- 14 Evaporation measurements are carried out in the period May 1 to September 30 only, using the International Hydrological Decade class A pan. The data reported is the sum of the daily net evaporation. Particulars of the measurement procedure are contained in the Atmospheric Environment Service publication Evaporation, May, 1978. The data base available for comparison is the Saskatoon SRC record for the period 1964 to 1984. The notation M refers to missing data.
- 15 The Mean Wind Speed value reported is the mean of the hourly wind speeds for the period in question. Average hourly wind speeds are obtained from recording instruments. The anemometer employed is a propeller-type aerofoil at a height of 10 m. Normals used for comparison purposes are those of Saskatoon Airport, from the Atmospheric Environment Service publication Canadian Normals, Volume 5, Wind 1951-1980.
- 16 Peak Gust refers to the highest instantaneous value recorded by the anemometer system for the period of reference, irrespective of direction and/or duration. Comparison is again with published data for Saskatoon Airport.
- 17 Total Bright Sunshine is the sum of the daily bright sunshine values in hours and tenths of hours as recorded by a Campbell-Stokes sunshine recorder. Atmospheric Environment Service publication, Bright Sunshine, 1951-1980, Volume 7 supplies information on measurement procedures and normals respectively.
- 18 Percent Possible Sunshine Hours refers to the ratio of measured bright sunshine hours to total possible daylight hours in a given period, expressed as a percentage.
- 19 Total Global Solar Radiation is the sum of the daily values of short wave solar radiation recorded during the period in question. Measurements are carried out on a horizontal surface at the ground and integrated over the whole celestial dome, summing the diffuse and direct components of the solar beam. The measuring instrument is a temperature-compensated Eppley pyranometer. The standard metric unit of measurement is the megajoule per square metre (MJ m^{-2}). (To facilitate comparison with past years' data: $1.0 \text{ MJ m}^{-2} = 23.895 \text{ langley}$ s). Comparison is provided with a provisional Normal based on

six years of data (1975-1980). Diffuse Solar Radiation is also recorded (Table 26). The instrument used is an Eppley pyranometer with a shade ring.

- 20 The Year/Day entry appearing in Tables 2 to 13 refers to the year and day on which an extreme event occurred. Reference to the month appears in the table heading. For example, referring to Table 2, the warmest day in January, 1985 was the 3rd with a high temperature of 6.5°C while the warmest January day on record was January 30, 1931 with a high temperature of 10.0°C.
- 21 Due to missing observations, faulty instrument calibration, lost records, etc., only partial data are available especially during the period 1892 to 1915. The number of years of useful record is therefore cited.
- 22 Soil Temperature, under a short grass surface with normal snow accumulation, is measured according to procedures outlined in the Atmospheric Environment Service publication Soil Temperature, January 1, 1976. Depths below surface at which soil temperature measurements are made are: 5 cm, 10 cm, 20 cm, 50 cm, 100 cm, 150 cm and 300 cm. Since soil temperature is affected by profile structure and water content, extrapolation of the measured data is difficult.

Table 1. Annual Climatic Summary, Saskatoon SRC, 1985.

Element	Value	Difference Between 1985 and 1984 Values	Difference Between 1985 and Normal Values	Difference Between 1985 Value and Value From All Years
Mean Annual Temperature ⁴ (°C)	1.1	-2.0	-0.7	
Mean Maximum Temperature ⁵ (°C)	6.9	-1.9	-0.6	
Mean Minimum Temperature ⁶ (°C)	-4.8	-2.3	-0.8	
Extreme Maximum Temperature ⁷ (°C)	37.0 (July)	-1.5 (July)	0.3 (Aug.)	-3.0
Extreme Minimum Temperature ⁷ (°C)	-38.5 (Jan.)	-0.5 (Dec.)	5.9 (Dec.)	11.5
Days with Frost ⁸	198	-12.0	-1.0	
Heating Degree-Days ⁹ (18°C base)	6196	493	166.9	
Growing Degree-Days ¹⁰ (5°C base)	1439	-343	-196.9	
Total Precipitation ¹¹ (mm)	330.6	33.1	-39.9	
Total Rainfall ¹¹ (mm)	251.5	81.0	8.5	
Total Snowfall ¹² (cm)	79.1	-47.9	-38.9	
Greatest 24-hr Precipitation (mm)	39.9 (May)	3.2 (Oct.)	-5.6	-59.5
Greatest 24-hr Rainfall (mm)	39.9 (May)	21.3 (Sept.)	-5.6	-59.5
Greatest 24-hr Snowfall (cm)	10.0 (Feb.)	-26.7 (Oct.)	-22.0	-26.7
Precipitation Days ¹³	105	17	-11	
Rainfall Days ¹³	58	9	-1	
Snowfall Days ¹³	48	6	-14	
Total Evaporation ¹⁴ (mm) (May-Sept.)	894.1	-284.9	176.5	
Mean Wind Speed ¹⁵ (km/hr)	14.0	-0.7	-3.5	
Peak Wind Gust ¹⁶ (km/hr)	160 (July)	73 (Aug.)	9 (Aug.)	
Total Bright Sunshine ¹⁷ (hr)	2264.7	-53.3	-185.3	
Total Global Radiation ¹⁹ (MJ m ⁻²)	4461.4	4.0	-17.7	
Total Diffuse Radiation (MJ m ⁻²)	1757.8	381.1	--	

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 417 m ASL
MONTHLY WEATHER SUMMARY
JANUARY, 1985

Table 2.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	-15.4	-12.1	-19.1	
Monthly Mean Maximum Temperature ⁵ (°C)	-8.8	-6.5	-14.2	
Monthly Mean Minimum Temperature ⁶ (°C)	-21.9	-17.6	-23.9	
Extreme Maximum Temperature ⁷ (°C)	6.5	6.5	6.1	10.0
Year/Day(s) ²⁰	1985/1	1984/4	--	1931/30
Years of Record ²¹	1	1	17	87
Extreme Minimum Temperature ⁷ (°C)	-38.5	-11.5	-43.9	-48.9
Year/Day(s) ²⁰	1985/19	1984/14, 19, 20	--	1893/31
Years of Record ²¹	1	1	17	87
Days with Frost ⁸	31	31	31	
Heating Degree-Days ⁹ (18°C base)	1041	946	1149	
Growing Degree-Days ¹⁰ (5°C base)	0	0	0	
Total Precipitation ¹¹ (mm)	11.6	8.6	22.6	
Total Rainfall ¹¹ (mm)	T	1.3	0.1	
Total Snowfall ¹² (cm)	11.6	7.3	21.2	
Greatest 24-hour Precipitation (mm)	8.5	2.8	12.4	30.5
Year/Day(s) ²⁰	1985/17	1984/26	--	1893/23
Years of Record ²¹	1	1	17	87
Greatest 24-hour Rainfall (mm)	T	0.8	1.8	2.0
Year/Day(s) ²⁰	1985/12	1984/26	--	1947/10
Years of Record ²¹	1	1	17	87
Greatest 24-hour Snowfall (cm)	8.5	2.2	12.4	30.5
Year/Day(s) ²⁰	1985/17	1984/11	--	1893/23
Years of Record ²¹	1	1	17	87
Precipitation Days ¹³	5	7	13	9
Rainfall Days ¹³	*	2	*	1
Snowfall Days ¹³	5	6	13	9
Total Evaporation ¹⁴ (mm)	--	--	May-Sept. only	
Mean Wind Speed ¹⁵ (km/hr)	13.5	14.3	16.8	
Peak Gust Speed ¹⁶	69.0	79.0	97.0	
Total Bright Sunshine ¹⁷ (hr)	91.3	123.6	103.0	
Percent Possible Bright Sunshine ¹⁸	36	48	40	
Total Global Radiation ¹⁹ (MJ m ⁻²)	137.7	129.5	132.6	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	74.3	72.0	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	-7.7, -5.3	-7.9, -4.1	-8.7, -3.8	
Mean Soil Temperature ²² (°C) (150, 300 cm)	0.6, 4.4	1.7, 4.9	2.1, 4.5	

SUMMARY:

Although the monthly mean temperature of -15.4°C was 3.7° above the 1951-1980 normal, Saskatoon CRS experienced 11 days this month with below normal temperatures with daily minima ranging from -27.0°C to as low as -38.5°C. Above normal temperatures were experienced on 10 days this month with daily maxima climbing to above 0°C on six days - the "January Thaw".

Only 11.6 mm of precipitation, which is slightly less than one half of the normal amount of January precipitation, was recorded. Approximately 75% (8.5 mm) of that precipitation fell on the 17th in the form of snowfall. Only a trace of freezing rain was recorded on the 12th.

The total bright sunshine hours recorded at CRS (91.3 hours) was only 36% of the total possible bright sunshine for the month (256 hours).

The global radiation (direct and diffuse) recorded (137.7 MJ m⁻²) slightly surpasses the 30 year normal by approximately 4%. (Note: 1 MJ m⁻² = 23.895 Langley's).

At this time of the year, the cold and wind can leave a strong negative impression of winter.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m MSL
MONTHLY WEATHER SUMMARY
FEBRUARY, 1985

Table 3.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ⁴	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	-17.0	-3.9	-14.5	
Monthly Mean Maximum Temperature ⁵ (°C)	-11.5	0.5	-9.3	
Monthly Mean Minimum Temperature ⁶ (°C)	-27.5	-8.3	-19.7	
Extreme Maximum Temperature ⁷ (°C)	6.0	4.5	6.1	12.8
Year/Day(s) ²⁰	1985/28	1984/20	--	1931/19
Years of Record ²¹	1	1	17	89
Extreme Minimum Temperature ⁷ (°C)	-37.0	-21.5	-41.1	-50.0
Year/Day(s) ²⁰	1985/2 & 3	1984/4	--	1893/1
Years of Record ²¹	1	1	17	89
Days with Frost ⁸	28	29	28	
Heating Degree-Days ⁹ (18°C base)	1018.5	637.5	920.4	
Growing Degree-Days ¹⁰ (5°C base)	0.0	0.0	0.0	
Total Precipitation ¹¹ (mm)	23.1	2.5	21.9	
Total Rainfall ¹¹ (mm)	0.0	T	0.4	
Total Snowfall ¹² (cm)	23.1	2.5	18.5	
Greatest 24-hour Precipitation (mm)	10.0	1.5	14.2	20.3
Year/Day(s) ²⁰	1985/24	1984/29	--	1918/7
Years of Record ²¹	1	1	17	88
Greatest 24-hour Rainfall (mm)	0.0	T	1.8	8.1
Year/Day(s) ²⁰	--	1984/14	--	1953/3
Years of Record ²¹	1	1	17	88
Greatest 24-hour Snowfall (cm)	10.0	1.5	14.2	20.3
Year/Day(s) ²⁰	1985/24	1984/29	--	1918/7
Years of Record ²¹	1	1	17	88
Precipitation Days ¹³	9	2	11	
Rainfall Days ¹³	0	--	*	
Snowfall Days ¹³	9	2	10	
Total Evaporation ¹⁴ (mm)	--	--	--	
Mean Wind Speed ¹⁵ (km/hr)	12.9	13.4	16.4	
Peak Gust Speed ¹⁶ (km/hr)	72.0	59.0	85.0	
Total Bright Sunshine ¹⁷ (hr)	100.2	154.3	135.1	
Percent Possible Bright Sunshine ¹⁸	36.6	56.3	49.0	
Total Global Radiation ¹⁹ (MJ m ⁻²)	219.2	210.0	232.9	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	119.6	98.0	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	-7, -6.7	-2.9, -1.7	-7.3, -4.1	
Mean Soil Temperature ²² (°C) (150, 300 cm)	-0.6, 3.1	0.5, 3.5	1.0, 3.2	

SUMMARY:

February was colder than normal as indicated by a monthly mean temperature of -17.0°C as compared to the normal of -14.5°C. The range of extreme temperatures was considerable, dropping to -37.0°C on the 2nd and 3rd and reaching 6.0°C on the 28th. Daily mean temperatures were below normal for the first half of the month, and above normal for the latter half of the month.

The total precipitation of 23.1 mm for the month is only slightly above the normal (by 1.2 mm). All the precipitation recorded was in the form of snowfall, with 10 cm of snow falling during one event on the 24th.

The total bright sunshine recorded at CRS (100.2 hours) was only 37% of the total possible bright sunshine, and 36% below the normal (135.2 hours) sunshine hours received.

The mean wind speed (12.9 km/hr) was 3.5 km/hr below the normal for the month.

Soil temperatures at the 5-150 cm depths were all below the normal temperatures by approximately 1.5-2.6°C. The mean soil temperature at the 300 cm depth (3.1°C) was only 0.1°C below the 1951-1980 normal.

Overall, February has been colder than normal, with near normal precipitation. With spring on its way it is safe to forecast milder temperatures.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m HSL
MONTHLY WEATHER SUMMARY
MARCH, 1985

Table 4.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	-4.3	-5.5	-8.5	
Monthly Mean Maximum Temperature ⁵ (°C)	0.4	-1.2	-3.5	
Monthly Mean Minimum Temperature ⁶ (°C)	-9.0	-9.7	-13.6	
Extreme Maximum Temperature ⁷ (°C)	6.0	11.5	15.0	22.8
Year/Day(s) ²⁰	1985/20	1984/23	--	1910/23
Years of Record ²¹	1	1	17	89
Extreme Minimum Temperature ⁷ (°C)	-20.0	-22.0	-38.1	-43.3
Year/Day(s) ²⁰	1985/2	1984/8, 14	--	1897/14
Years of Record ²¹	1	1	17	89
Days with Frost ⁸	31	31	31	
Heating Degree-Days ⁹ (18°C base)	683.5	728.0	826.0	
Growing Degree-Days ¹⁰ (5°C base)	0.0	0.0	0.9	
Total Precipitation ¹¹ (mm)	11.1	11.5	22.3	
Total Rainfall ¹¹ (mm)	TR	2.2	1.1	
Total Snowfall ¹² (cm)	11.1	9.3	19.5	
Greatest 24-hour Precipitation (mm)	7.4	3.0	32.0	32.0
Year/Day(s) ²⁰	1985/22	1984/13	--	1967/30
Years of Record ²¹	1	1	17	88
Greatest 24-hour Rainfall (mm)	TR	2.2	7.1	7.4
Year/Day(s) ²⁰	1985/24	1984/24	--	1938/28
Years of Record ²¹	1	1	17	89
Greatest 24-hour Snowfall (cm)	7.4	3.0	32.0	32.0
Year/Day(s) ²⁰	1985/22	1984/13	--	1967/30
Years of Record ²¹	1	1	17	88
Precipitation Days ¹³	5	6	10	
Rainfall Days ¹³	1	1	1	
Snowfall Days ¹³	5	5	10	
Total Evaporation ¹⁴ (mm)	--	--	(May - Sept.)	
Mean Wind Speed ¹⁵ (km/hr)	14.2	12.8	17.5	
Peak Gust Speed ¹⁶ (km/hr)	58.0	80.0	93.0	
Total Bright Sunshine ¹⁷ (hr)	205.8	119.8	190.0	
Percent Possible Bright Sunshine ¹⁸	56	33	52	
Total Global Radiation ¹⁹ (MJ m ⁻²)	423.6	300.8	422.9	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	149.3	167.8	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	-2.3, -2.5	-2.3, -1.2	-3.5, -2.1	
Mean Soil Temperature ²² (°C) (150, 300 cm)	-0.7, 2.0	0.6, 2.9	0.5, 2.5	

SUMMARY:

March has been a warm month with above normal temperatures on 26 of 31 days. The longest warm spell (18 consecutive days) to date occurred on March 5 to 22. The mean temperature (-4.3°C) is 4.2°C above the normal 1951-1980 temperature. Extreme temperatures have ranged from a maximum of 6.0°C (on the 20th) to a minimum of -20.0°C (on the 2nd).

The total precipitation (11.1 mm) recorded at CRS is below the normal amount by approximately 50% (11.2 mm). Precipitation recorded was in the form of snow with exception of a trace of rain that was recorded on the 24th. Approximately 67% of the total monthly precipitation (7.4 mm) fell as snow during a 24 hour period (March 22nd). The total annual precipitation recorded to date (45.8 mm) is below the normal for the same period (January-March) by 21 mm (31%). The total winter snowfall (September, 1984 - March, 1985) of 147.3 cm is 139% of the 1951-1980 normal (106.2 cm) for the same period.

The sunshine hours recorded (205.8 hours) is 56% of the total possible bright sunshine, and approximately 47% above the normal.

Soil temperatures at the 5-20 cm depths are slightly above (1.1°C) the normal, while soil temperatures at the 50-300 cm depths are slightly below (0.4°C to 1.2°C) normal temperatures.

March has been a warm and dry month with above normal temperatures, bright sunshine and below normal precipitation.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m MSL
MONTHLY WEATHER SUMMARY

Table 5.

APRIL, 1985

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	5.4	7.4	3.4	
Monthly Mean Maximum Temperature ⁵ (°C)	10.1	14.6	9.0	
Monthly Mean Minimum Temperature ⁶ (°C)	0.6	0.1	-2.3	
Extreme Maximum Temperature ⁷ (°C)	20.5	25.5	30.6	33.0
Year/Day(s) ²⁰	1985/13	1984/17	--	1952/28
Years of Record ²¹	1	1	17	89
Extreme Minimum Temperature ⁷ (°C)	-7.5	-6.0	-27.8	-28.3
Year/Day(s) ²⁰	1985/6	1984/26,30	--	1893/1954
Years of Record ²¹	1	1	17	88
Days with Frost ⁸	14	17	22	
Heating Degree-Days ⁹ (18°C base)	377.5	316.5	440.0	
Growing Degree-Days ¹⁰ (5°C base)	54.5	98.0	47.0	
Total Precipitation ¹¹ (mm)	55.9	15.6	21.4	
Total Rainfall ¹¹ (mm)	46.8	9.4	10.7	
Total Snowfall ¹² (cm)	9.1	6.2	10.0	
Greatest 24-hour Precipitation (mm)	24.6	7.2	19.3	30.2
Year/Day(s) ²⁰	1985/19	1984/7	--	1955/19
Years of Record ²¹	1	1	17	88
Greatest 24-hour Rainfall (mm)	24.6	7.2	11.7	26.7
Year/Day(s) ²⁰	1985/19	1984/7	--	1926/23
Years of Record ²¹	1	1	17	88
Greatest 24-hour Snowfall (cm)	3.6	6.2	18.0	20.3
Year/Day(s) ²⁰	1985/16	1984/25	--	1942/5
Years of Record ²¹	1	1	17	88
Precipitation Days ¹³	8	6	7	
Rainfall Days ¹³	5	5	5	
Snowfall Days ¹³	3	1	4	
Total Evaporation ¹⁴ (mm)	--	--	(May-Sept.)	
Mean Wind Speed ¹⁵ (km/hr)	16.6	14.8	19.0	
Peak Gust Speed ¹⁶ (km/hr)	77	63	108	
Total Bright Sunshine ¹⁷ (hr)	206	247	232	
Percent Possible Bright Sunshine ¹⁸	50	60	56	
Total Global Radiation ¹⁹ (MJ m ⁻²)	450	506	519	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	155	176	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	4.4, 2.1	7.0, 4.4	4.0, 2.0	
Mean Soil Temperature ²² (°C) (150, 300 cm)	0.5, 2.0	1.9, 2.6	0.9, 2.1	

SUMMARY:

The April mean temperature of 5.4°C was 2.0° above the normal, and above normal daily temperatures were recorded for 21 of 30 days. Extreme temperatures have ranged from a maximum of 20.5°C (on the 13th) to a minimum of -7.5°C (on the 6th).

The total precipitation recorded at CRS is above the normal (21.4 mm) by 161%. The total amount (55.9 mm) was composed of 46.8 mm of rain and 9.1 cm of snow. The cessation of snowpack or the first day of the first five day interval in which snow cover is reduced to less than 1 cm depth, occurred on April 7th. The total precipitation for the January-April period of 101.7 mm is 15% above the normal (88.2 mm) for the same period.

Soil temperatures at the 5-50 cm depths are slightly above normal, while soil temperatures at the 100-300 cm depths are slightly below normal.

The mean windspeed of 16.6 km/hr is slightly below the normal (19.0 km/hr) by 13%. Although mean windspeeds were below normal, there were eight days with mean daily windspeeds greater than 20 km/hr.

The Campbell-Stokes instrument at CRS recorded 206.8 hours of bright sunshine. This amount is approximately 50% of the total possible sunshine hours (415 hrs) and approximately 6% below the normal.

April has been a warm and wet month, with above normal temperatures, almost normal snow, and substantially above normal rain. The above normal precipitation and slow runoff this spring has provided adequate moisture levels for agriculture in the Saskatoon area.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m MSL
MONTHLY WEATHER SUMMARY
MAY, 1985

Table 6.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	12.9	10.1	11.2	
Monthly Mean Maximum Temperature ⁵ (°C)	19.4	17.1	18.1	
Monthly Mean Minimum Temperature ⁶ (°C)	6.4	3.1	4.3	
Extreme Maximum Temperature ⁷ (°C)	28.0	31.0	34.0	37.2
Year/Day(s) ²⁰	1985/4	1984/30	--	1936/27
Years of Record ²¹	1	1	17	88
Extreme Minimum Temperature ⁷ (°C)	1.5	-5.5	-10.0	-12.8
Year/Day(s) ²⁰	1985/19	1984/7,11	--	1907/6
Years of Record ²¹	1	1	17	88
Days with Frost ⁸	0	11	6	
Heating Degree-Days ⁹ (18°C base)	160.0	248.0	216.0	
Growing Degree-Days ¹⁰ (5°C base)	247.0	173.0	199.0	
Total Precipitation ¹¹ (mm)	67.3	30.1	39.6	
Total Rainfall ¹¹ (mm)	67.3	29.9	37.7	
Total Snowfall ¹² (cm)	0.0	0.2	1.8	
Greatest 24-hour Precipitation (mm)	39.9	17.8	33.8	51.3
Year/Day(s) ²⁰	1985/4	1984/17	--	1909/30
Years of Record ²¹	1	1	17	88
Greatest 24-hour Rainfall (mm)	39.9	17.8	33.8	51.3
Year/Day(s) ²⁰	1985/4	1984/17	--	1909/30
Years of Record ²¹	1	1	17	88
Greatest 24-hour Snowfall (cm)	0.0	0.2	4.3	26.2
Year/Day(s) ²⁰	--	1984/7	--	1983/10
Years of Record ²¹	1	1	17	88
Precipitation Days ¹³	11	11	7	
Rainfall Days ¹³	11	10	1	
Snowfall Days ¹³	0	1	7	
Total Evaporation ¹⁴ (mm)	182	199	210	
Mean Wind Speed ¹⁵ (km/hr)	13.4	18.3	19.4	
Peak Gust Speed ¹⁶ (km/hr)	81	86	132	
Total Bright Sunshine ¹⁷ (hr)	270	234	292	
Percent Possible Bright Sunshine ¹⁸	56	48	60	
Total Global Radiation ¹⁹ (MJ m ⁻²)	556	570	659	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	221	57	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	13.2, 9.4	11.0, 8.4	12.3, 8.8	
Mean Soil Temperature ²² (°C) (150, 300 cm)	4.6, 3.0	4.9, 3.7	4.1, 2.9	

SUMMARY:

The May mean temperature of 12.9°C was 1.7° above the normal temperature, and above normal temperatures were recorded for 22 of 31 days. Extreme temperatures ranged from a minimum of 1.5°C (on the 19th) to a maximum of 28.0°C (on the 4th).

The total precipitation (67.3 mm) recorded at CRS is above the normal (39.6 mm) by 170%. The greatest 24 hour precipitation of 39.9 mm (on the 4th) is the second highest 24 hour amount for May on record. The January-May total precipitation of 169.0 mm is 41.2 mm above the normal.

The mean windspeed of 13.4 km/hr is substantially below the normal (19.4 km/hr) by 30%. Above normal windspeeds were recorded on 5 of 31 days.

Soil temperatures at the 10 and 50 cm depths were above the normal by 2.7°C and 1.2°C respectively, while soil temperatures at the 150 and 300 cm levels were slightly below normal by 0.3°C and 0.7°C respectively.

The total bright sunshine hours (269.7 hrs) recorded at CRS were slightly below the normal by 4%.

With the exception of the last week of the month, May has been generally warm and wet, with above normal temperatures and rainfall.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m HSL
MONTHLY WEATHER SUMMARY
JUNE, 1985

Table 7.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ⁴	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	13.0	16.1	15.6	
Monthly Mean Maximum Temperature ⁵ (°C)	19.4	22.3	22.1	
Monthly Mean Minimum Temperature ⁶ (°C)	6.5	9.8	9.1	
Extreme Maximum Temperature ⁷ (°C)	29.0	34.0	35.6	40.0
Year/Day(s) ²⁰	1985/19	1984/30	--	1900/21 & 1941/24
Years of Record ²¹	1	1	17	89
Extreme Minimum Temperature ⁷ (°C)	-2.5	1.0	-3.3	-3.9
Year/Day(s) ²⁰	1985/4	1984/3	--	1903/9 & 1917/2
Years of Record ²¹	1	1	17	89
Days with Frost ⁸	2	0	0	
Heating Degree-Days ⁹ (18°C base)	156.5	79.5	89.0	
Growing Degree-Days ¹⁰ (5°C base)	236.5	334.5	319.0	
Total Precipitation ¹¹ (mm)	13.0	52.0	59.9	
Total Rainfall ¹¹ (mm)	13.0	52.0	59.9	
Total Snowfall ¹² (cm)	0	0	0	
Greatest 24-hour Precipitation (mm)	5.2	13.0	45.0	99.4
Year/Day(s) ²⁰	1985/16	1984/6	--	1983/24
Years of Record ²¹	1	1	17	89
Greatest 24-hour Rainfall (mm)	5.2	13.0	45.0	99.4
Year/Day(s) ²⁰	1985/16	1984/6	--	1983/24
Years of Record ²¹	1	1	17	89
Greatest 24-hour Snowfall (cm)	--	--	0.0	1.8
Year/Day(s) ²⁰	--	--	--	1938/29
Years of Record ²¹	--	--	17	89
Precipitation Days ¹³	10	9	11	
Rainfall Days ¹³	10	9	11	
Snowfall Days ¹³	0	0	0	
Total Evaporation ¹⁴ (mm)	191.5	228.2	223.0	
Mean Wind Speed ¹⁵ (km/hr)	16.1	14.7	18.2	
Peak Gust Speed ¹⁶ (km/hr)	96	79	101	
Total Bright Sunshine ¹⁷ (hr)	266.2	272.3	294.0	
Percent Possible Bright Sunshine ¹⁸	54	55	59	
Total Global Radiation ¹⁹ (MJ m ⁻²)	613	657	683	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	257	214	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	13.5, 12.2	17.3, 13.5	17.5, 14.0	
Mean Soil Temperature ²² (°C) (150, 300 cm)	7.6, 5.3	7.6, 5.3	8.3, 5.2	

SUMMARY:

The mean temperature (13.0°C) was below the normal temperature (15.6°C) by 2.6°C, while 20 of 30 days with below normal temperatures were recorded. Only 10 of 30 days displayed above normal temperatures and on those rare warm days, the extreme maximum temperature climbed to 29.0°C (on the 19th). In contrast, the extreme minimum temperature dipped to -2.5°C (on the 4th) breaking the all time record for that day. The occurrence of frost on June 3 and 4 surpasses the average date of the last spring frost (May 23) by 12 days.

The total precipitation (13.0 mm) recorded at CRS is only 21.7% of the normal (59.9 mm). The January-June total precipitation (182.0 mm) is slightly below the normal (187.7 mm) for the same period. The greatest 24 hour rainfall (5.2 mm) is in great contrast to the record 24 hour rainfall of 45.0 mm recorded in June, 1983.

The number of heating degree days calculated for CRS (156.5) is above the normal by approximately 75%, while the number of growing degree days are substantially below the normal by 74%.

Soil temperatures at all depths with the exception of 300 cm, are below the normal temperatures.

With the exception of 10 days, June has been cool and dry with below normal temperatures and precipitation.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
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MONTHLY WEATHER SUMMARY

Table 8.

July, 1985

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	17.8	21.7	18.4	
Monthly Mean Maximum Temperature ⁵ (°C)	25.3	27.8	25.2	
Monthly Mean Minimum Temperature ⁶ (°C)	10.3	15.5	11.6	
Extreme Maximum Temperature ⁷ (°C)	37.0	38.5	36.7	40.0
Year/Day(s) ²⁰	1985/5	1984/27	--	1919/17, 1941/19
Years of Record ²¹	1	1	17	89
Extreme Minimum Temperature ⁷ (°C)	5.5	5.5	1.7	-0.6
Year/Day(s) ²⁰	1985/1	1984/5	--	1918/25
Years of Record ²¹	1	1	17	89
Days with Frost ⁸	0	0	0	
Heating Degree-Days ⁹ (18°C base)	39.0	16.0	32.8	
Growing Degree-Days ¹⁰ (5°C base)	402.0	459.5	416.3	
Total Precipitation ¹¹ (mm)	59.5	13.0	56.2	
Total Rainfall ¹¹ (mm)	59.5	13.0	56.2	
Total Snowfall ¹² (cm)	0.0	0.0	0.0	
Greatest 24-hour Precipitation (mm)	30.4	6.4	45.5	79.2
Year/Day(s) ²⁰	1985/17	1984/21	--	1946/3
Years of Record ²¹	1	1	17	89
Greatest 24-hour Rainfall (mm)	30.4	6.4	45.5	79.2
Year/Day(s) ²⁰	1985/17	1984/21	--	1946/3
Years of Record ²¹	1	1	17	89
Greatest 24-hour Snowfall (cm)	0.0	0.0	0.0	0.0
Year/Day(s) ²⁰	--	--	--	--
Years of Record ²¹	1	1	17	--
Precipitation Days ¹³	7	4	11	
Rainfall Days ¹³	7	4	11	
Snowfall Days ¹³	0	0	0	
Total Evaporation ¹⁴ (mm)	241.0	313.3	220.0	
Mean Wind Speed ¹⁵ (km/hr)	11.4	14.4	16.7	
Peak Gust Speed ¹⁶ (km/hr)	160	80	105	
Total Bright Sunshine ¹⁷ (hr)	378.9	380.4	341.0	
Percent Possible Bright Sunshine ¹⁸	76	76	68	
Total Global Radiation ¹⁹ (MJ m ⁻²)	709.8	719	737	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	235.8	116	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	19.9, 16.1	21.1, 17.3	19.7, 16.9	
Mean Soil Temperature ²² (°C) (150, 300 cm)	10.2, 7.1	10.5, 7.3	11.4, 7.6	

SUMMARY:

The mean temperature of 17.8°C is slightly below the normal July mean temperature by 0.6°C. The extreme temperatures ranged from a minimum of 5.5°C (on the 1st) to a maximum of 37.0°C (on the 5th). The extreme maximum temperature on the 5th surpassed the all time record maximum temperature for that day (36.0°C) as well as for the 1951-1980 period.

The total precipitation (59.5 mm) recorded at C.R.S. is slightly above the normal (56.2 mm) by 3.3 mm, however the Jan.-July total precipitation (241.5 mm) is slightly below the normal by 2.4 mm. Precipitation was recorded on seven days, with approximately one half (30.4 mm) of the total falling in one 24 hour period (17th).

The mean windspeed of 11.4 km/hr. is well below the normal July windspeed of 16.7 km/hr.

Mean soil temperatures closest to the surface (5-20 cm) are above normal, while the mean temperatures at soil depths of 50-300 cm are below normal.

The total bright sunshine hours (378.9) recorded on the Campbell-Stokes instrument are approximately 11% above the normal.

Overall, the month of July has experienced slightly above normal precipitation with a variety of above and below normal mean daily temperatures.

SASKATCHEWAN RESEARCH COUNCIL
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MONTHLY WEATHER SUMMARY

Table 9.

AUGUST, 1985

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ^c	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	15.1	20.3	17.2	
Monthly Mean Maximum Temperature ⁵ (°C)	22.6	28.2	24.2	
Monthly Mean Minimum Temperature ⁶ (°C)	7.6	12.3	10.2	
Extreme Maximum Temperature ⁷ (°C)	32.5	37.0	36.7	37.8
Year/Day(s) ²⁰	1985/25	1984/10	--	1893/6, 1949/6
Years of Record ²¹	1	1	17	88
Extreme Minimum Temperature ⁷ (°C)	0.5	-0.5	-2.8	-2.8
Year/Day(s) ²⁰	1985/27	1984/31	--	1976/28
Years of Record ²¹	1	1	17	88
Days with Frost ⁸	0	1	0	
Heating Degree-Days ⁹ (18°C base)	97.5	31.0	60.1	
Growing Degree-Days ¹⁰ (5°C base)	319.5	479.5	378.7	
Total Precipitation ¹¹ (mm)	19.3	9.6	35.1	
Total Rainfall ¹¹ (mm)	19.3	9.6	35.1	
Total Snowfall ¹² (cm)	0.0	0.0	0.0	
Greatest 24-hour Precipitation (mm)	7.0	5.4	24.6	73.7
Year/Day(s) ²⁰	1985/8	1984/3	--	1945/3
Years of Record ²¹	1	1	17	88
Greatest 24-hour Rainfall (mm)	7.0	5.4	24.6	73.7
Year/Day(s) ²⁰	1985/8	1984/3	--	1945/3
Years of Record ²¹	1	1	17	88
Greatest 24-hour Snowfall (cm)	0.0	0.0	0.0	0.0
Year/Day(s) ²⁰	--	--	--	--
Years of Record ²¹	1	1	17	
Precipitation Days ¹³	8	6	10	
Rainfall Days ¹³	8	6	10	
Snowfall Days ¹³	0	0	0	
Total Evaporation ¹⁴ (mm)	185.8	276.7	206.0	
Mean Wind Speed ¹⁵ (km/hr)	13.5	13.9	16.5	
Peak Gust Speed ¹⁶ (km/hr)	129	87	151	
Total Bright Sunshine ¹⁷ (hr)	296.6	334.7	293.0	
Percent Possible Bright Sunshine ¹⁸	65	74	65	
Total Global Radiation ¹⁹ (MJ m ⁻²)	563.1	584	605	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	196.5	99	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	15.7, 16.0	21.1, 18.6	18.4, 16.7	
Mean Soil Temperature ²² (°C) (150, 300 cm)	11.4, 8.6	12.5, 8.9	12.6, 9.3	

SUMMARY:

The mean temperature of 15.1°C was below the normal temperature (17.2°C) by 2.1°C and 23 of 31 days had below normal temperatures. Only 8 of 31 days displayed above normal temperatures. The extreme maximum temperature climbed to 32.5°C (on the 25th). Only two days later the extreme minimum temperature dropped to 0.5°C.

The total precipitation (19.3 mm) recorded at CRS was only 55% of the normal (35.1 mm). Precipitation was recorded on eight days. The January-April total precipitation (260.8 mm) was below the normal (279.0 mm) for the same period by 18.2 mm. The greatest 24 hour rainfall was only 7.0 mm (on the 8th).

The number of heating degree days (97.5) was above the normal by approximately 62%, while the number of growing degree days was below the normal by 16%.

The mean windspeed of 13.5 km/hr was slightly below the normal August windspeed of 16.5 km/hr.

Soil temperatures at all depths were below the normal temperatures.

The total bright sunshine hours (296.6 hours) were almost the same as the normal value.

With the exception of eight days, August has been cool and dry with below normal temperatures and precipitation.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m MSL
MONTHLY WEATHER SUMMARY
SEPTEMBER, 1985

Table 10.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ^c	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	8.6	8.3	11.5	
Monthly Mean Maximum Temperature ⁵ (°C)	13.7	14.3	17.8	
Monthly Mean Minimum Temperature ⁶ (°C)	3.5	2.3	5.1	
Extreme Maximum Temperature ⁷ (°C)	24.5	31.0	35.6	35.6
Year/Day(s) ²⁰	1985/14	1984/5	--	1978/4
Years of Record ²¹	1	1	16	86
Extreme Minimum Temperature ⁷ (°C)	-6.0	-6.5	-7.8	-11.1
Year/Day(s) ²⁰	1985/29	1984/28	--	1908/28
Years of Record ²¹	1	1	16	86
Days with Frost ⁸	9	11	4	
Heating Degree-Days ⁹ (18°C base)	274.0	289.5	201.3	
Growing Degree-Days ¹⁰ (5°C base)	137.0	128.5	200.8	
Total Precipitation ¹¹ (mm)	40.0	56.9	32.2	
Total Rainfall ¹¹ (mm)	39.7	48.0	30.8	
Total Snowfall ¹² (cm)	0.3	8.9	1.3	
Greatest 24-hour Precipitation (mm)	13.4	25.3	29.6	44.2
Year/Day(s) ²⁰	1985/26	1984/21	--	1931/12
Years of Record ²¹	1	1	16	86
Greatest 24-hour Rainfall (mm)	13.4	18.6	29.6	44.2
Year/Day(s) ²⁰	1985/26	1984/21	--	1931/12
Years of Record ²¹	1	1	16	86
Greatest 24-hour Snowfall (cm)	0.3	6.7	5.6	17.6
Year/Day(s) ²⁰	1985/22	1984/21	--	1982/28
Years of Record ²¹	1	1	16	86
Precipitation Days ¹³	12	10	9	
Rainfall Days ¹³	11	9	9	
Snowfall Days ¹³	1	3	1	
Total Evaporation ¹⁴ (mm)	93.8	101.0	125.0	
Mean Wind Speed ¹⁵ (km/hr)	14.3	13.2	18.1	
Peak Gust Speed ¹⁶ (km/hr)	76.0	80.0	148.0	
Total Bright Sunshine ¹⁷ (hr)	142.0	151.5	191.0	
Percent Possible Bright Sunshine ¹⁸	37	40	50	
Total Global Radiation ¹⁹ (MJ m ⁻²)	324.9	321.2	409.3	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	148.6	125.5	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	10.5, 12.2	10.5, 12.5	12.3, 13.2	
Mean Soil Temperature ²² (°C) (150, 300 cm)	10.9, 9.1	11.9, 10.1	12.1, 10.0	

SUMMARY:

The mean temperature of 8.6°C was below the normal temperature (11.5°C) by 2.9°C. Below normal temperatures were recorded on 20 of 30 days, while the longest cool spell for the month lasted 7 days. With the exception of 6 consecutive days with above normal temperatures, the remaining 4 days with above normal temperatures occurred sporadically throughout the month. Twice the normal number of frost days were recorded, with the first fall frost occurring on the 6th.

The monthly precipitation (40.0 mm) was 7.8 mm above the 1951-1980 normal (32.2 mm). Total precipitation consisted primarily of rain (39.7 mm) and 0.3 cm of snow. The January-September total precipitation (300.8 mm) is slightly below the normal by 10.4 mm.

The below normal temperatures are reflected in the above normal number of heating degree days (274.0) recorded at CRS.

Skies were overcast for much of the time and as a result the total bright sunshine hours (142.0 hrs) recorded falls well below the 1951-1980 normal of 191.0 hours.

Soil temperatures have fallen slightly below normal at all levels (5 cm - 300 cm). Although the surficial layer (5 cm) is not frozen, temperatures have fallen to a minimum of 2.0°C.

September has been cool and wet. Consequently, harvesting in the area has been delayed.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m MSL
MONTHLY WEATHER SUMMARY
OCTOBER, 1985

Table 11.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	4.5	3.1	5.2	
Monthly Mean Maximum Temperature ⁵ (°C)	10.5	7.6	11.1	
Monthly Mean Minimum Temperature ⁶ (°C)	-1.6	-1.4	-0.8	
Extreme Maximum Temperature ⁷ (°C)	20.0	28.5	28.3	32.2
Year/Day(s) ²⁰	1985/21	1984/8	-	1943/5
Years of Record ²¹	1	1	17	86
Extreme Minimum Temperature ⁷ (°C)	-9.5	-19.5	-18.3	-25.6
Year/Day(s) ²⁰	1985/15	1984/30, 31	-	1919/26
Years of Record ²¹	1	1	17	86
Days with Frost ⁸	23	18	18	
Heating Degree-Days ⁹ (18°C base)	417.0	443.0	398.0	
Growing Degree-Days ¹⁰ (5°C base)	42.0	109.0	71.1	
Total Precipitation ¹¹ (mm)	5.4	60.9	17.5	
Total Rainfall ¹¹ (mm)	3.5	5.1	7.7	
Total Snowfall ¹² (cm)	1.9	55.8	10.3	
Greatest 24-hour Precipitation (mm)	1.9	36.7	25.4	36.7
Year/Day(s) ²⁰	1985/16	1984/16	-	1984/16
Years of Record ²¹	1	1	17	86
Greatest 24-hour Rainfall (mm)	1.7	4.5	23.1	34.0
Year/Day(s) ²⁰	1985/2	1984/25	-	1914/5
Years of Record ²¹	1	1	17	86
Greatest 24-hour Snowfall (cm)	1.9	36.7	22.9	36.7
Year/Day(s) ²⁰	1985/16	1984/16	-	1984/16
Years of Record ²¹	1	1	17	86
Precipitation Days ¹³	5	11	5	
Rainfall Days ¹³	4	3	3	
Snowfall Days ¹³	1	8	3	
Total Evaporation ¹⁴ (mm)	7.0*	60.7*	-	
Mean Wind Speed ¹⁵ (km/hr)	16.7**	17.9	18.0	
Peak Gust Speed ¹⁶ (km/hr)	69	69.0	138	
Total Bright Sunshine ¹⁷ (hr)	150.3	131.7	175.0	
Percent Possible Bright Sunshine ¹⁸	46	40	53	
Total Global Radiation ¹⁹ (MJ m ⁻²)	2378	249.9	255.6	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	89.1	104.2	-	
Mean Soil Temperature ²² (°C) (10, 50 cm)	4.5, 7.1	6.1, 7.7	5.4, 8.0	
Mean Soil Temperature ²² (°C) (150, 300 cm)	8.3, 8.7	9.2, 9.3	9.8, 9.5	

*Evaporation program was discontinued after October 3, 1985.

**25 days.

SUMMARY:

The mean temperature of 4.5°C was slightly below the normal (5.2°C) by 0.7°. Above normal temperatures were recorded on 18 of 31 days, 14 of which were consecutive, resulting in the second longest warm spell of the year (longest-Mar. 18 days). Below normal temperatures were recorded on 13 days. Extreme maxima ranged between 20.0°C and -2.0°C, while extreme minima ranged between 6.0°C and -9.5°C.

The monthly precipitation of 5.4 mm is only 30.7% of the 1951-80 normal. Precipitation consisted of 3.5 mm rain and 1.9 cm of snow. The snowfall (1.9 cm) recorded on the 16th was substantially less than the record 36.7 recorded on the same date one year ago. The total precipitation (306.2 mm) recorded to October 31, 1985 is below the Jan.-Oct. normal (328.7 mm) by 22.5 mm.

The total bright sunshine hours recorded (150.3) fell well below the normal of 175 hours.

Soil temperatures at all levels (5 cm-300 cm) remain below normal values by 0.8°-2.1°. As can be expected, soil temperatures are dropping, however none have yet dipped below the freezing mark.

The mean windspeed of 16.7 km/hr. is slightly below the normal of 18.0 km/hr.

October temperatures and precipitation have been below normal. The lack of snow cover is a welcome change in comparison to last year's blanket of snow (55.8 cm).

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m MSL
MONTHLY WEATHER SUMMARY
NOVEMBER, 1985

Table 12.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	-15.4	-8.6	-5.5	
Monthly Mean Maximum Temperature ⁵ (°C)	-10.6	-5.0	-1.0	
Monthly Mean Minimum Temperature ⁶ (°C)	-20.1	-12.2	-10.0	
Extreme Maximum Temperature ⁷ (°C)	7.0	5.0	19.4	21.7
Year/Day(s) ²⁰	1985/1	1984/23	--	1903/3
Years of Record ²¹	1	1	18	87
Extreme Minimum Temperature ⁷ (°C)	-33.5	-24.0	-32.8	-39.4
Year/Day(s) ²⁰	1985/24	1984/1	--	1893/30
Years of Record ²¹	1	1	18	87
Days with Frost ⁸	30	30	29	
Heating Degree-Days ⁹ (18°C base)	1002.5	810.0	704.4	
Growing Degree-Days ¹⁰ (5°C base)	0.0	0.0	2.6	
Total Precipitation ¹¹ (mm)	9.8	19.2	16.0	
Total Rainfall ¹¹ (mm)	2.4	0.0 [*]	2.5	
Total Snowfall ¹² (cm)	7.4	19.2	12.3	
Greatest 24-hour Precipitation (mm)	3.0	8.3	19.3	27.9
Year/Day(s) ²⁰	1985/4	1984/30	--	1938/1
Years of Record ²¹	1	1	18	87
Greatest 24-hour Rainfall (mm)	1.6	0.0	14.5	14.5
Year/Day(s) ²⁰	1985/4	--	--	1978/4
Years of Record ²¹	1	1	18	87
Greatest 24-hour Snowfall (cm)	1.5	8.3	13.2	27.9
Year/Day(s) ²⁰	1985/25	1984/30	--	1938/1
Years of Record ²¹	1	1	18	87
Precipitation Days ¹³	10	8	9	
Rainfall Days ¹³	2	0	1	
Snowfall Days ¹³	9	8	8	
Total Evaporation ¹⁴ (mm)	--	--	--	
Mean Wind Speed ¹⁵ (km/hr)	11.1	14.7	16.9	
Peak Gust Speed ¹⁶ (km/hr)	57.0	60.0	100.0	
Total Bright Sunshine ¹⁷ (hr)	89.5	86.5	109.0	
Percent Possible Bright Sunshine ¹⁸	34	33	41	
Total Global Radiation ¹⁹ (MJ m ⁻²)	137.7	139.0	129.3	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	77.4	80.7	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	-6.1, -2.1	-0.6, 2.3	-1.7, 2.5	
Mean Soil Temperature ²² (°C) (150, 300 cm)	5.7, 7.3	6.3, 8.0	6.9, 8.1	

SUMMARY:

In addition to being the coldest November on record, below normal temperatures were recorded on 27 of 30 days! The longest cold spell this year occurred between November 16 to 30 when below normal temperatures were recorded on 15 consecutive days at C.R.S. Temperatures dipped low enough to break a record daily minimum on the 24th (-33.5°C, previous record -30.0°C). The mean monthly temperature of -15.4°C was almost 10°C lower than the normal (-5.5°C). Extreme minima ranged from 0°C to -33.5°C, while extreme maxima ranged from 7.0°C to -25°C.

The total monthly precipitation (9.8 mm) was substantially below the 1951-1980 normal (16.0 mm). Precipitation consisted of near normal rainfall amounts (2.4 mm) and below normal snowfall amounts (7.4 cm). The January to November total precipitation of 316.0 mm falls below the normal (344.7 mm) by 28.7 mm.

Below normal temperatures are reflected in the 42% above normal increase in heating degree days (1002.5).

Bright sunshine hours (89.5 hrs) and the mean wind speed (11.1 km/hr) were both below normal.

Soil temperature normals at the 5 cm to 50 cm levels were all substantially below normal (4.3 - 4.7°) while temperatures at the 100 cm to 300 cm levels were only slightly below normal. Frost has reached the 50 cm depth earlier than normal, and soil temperatures at the 100 cm depth have occasionally reached the freezing mark.

November has been a cold and dry month with below normal precipitation and temperatures. In fact, this November mean temperature was 1.5°C lower than the 1951-1980 December mean temperature. The below normal temperatures are attributed mainly to an Arctic High Pressure system located further south on the Prairies than normal for this time of the year. Consequently frigid temperatures have prevailed for the better part of this month.

SASKATCHEWAN RESEARCH COUNCIL
CLIMATE REFERENCE STATION
LOCATION: 52°09'N 106°36'W 497 m ASL
MONTHLY WEATHER SUMMARY
DECEMBER, 1985

Table 13.

Element	1985 Value	1984 Value	Mean or Extreme Value 1951-1980 ²	Extreme All Years ³
Monthly Mean Temperature ⁴ (°C)	-12.6	-19.5	-13.9	
Monthly Mean Maximum Temperature ⁵ (°C)	-7.3	-14.5	-9.3	
Monthly Mean Minimum Temperature ⁶ (°C)	-17.9	-24.4	-18.5	
Extreme Maximum Temperature ⁷ (°C)	6.0	2.5	8.0	13.3
Year/Day(s) ²⁰	1985/21	1984/7	--	1939/5
Years of Record ²¹	1	1	18	87
Extreme Minimum Temperature ⁷ (°C)	-30.5	-38.0	-42.2	-43.9
Year/Day(s) ²⁰	1985/1	1984/29	--	1892/22
Years of Record ²¹	1	1	18	87
Days with Frost ⁸	31	31	31	
Heating Degree-Days ⁹ (18°C base)	928.5	1158.0	992.0	
Growing Degree-Days ¹⁰ (5°C base)	0.0	0.0	0.0	
Total Precipitation ¹¹ (mm)	14.6	17.6	25.8	
Total Rainfall ¹¹ (mm)	T	0.0	0.8	
Total Snowfall ¹² (cm)	14.6	17.6	23.1	
Greatest 24-hour Precipitation (mm)	2.3	6.0	14.5	20.6
Year/Day(s) ²⁰	1985/18	1984/26	--	1936/24
Years of Record ²¹	1	1	18	87
Greatest 24-hour Rainfall (mm)	T	0.0	4.3	4.8
Year/Day(s) ²⁰	1985/22	--	--	1956/26
Years of Record ²¹	1	1	18	87
Greatest 24-hour Snowfall (cm)	2.3	6.0	14.5	20.6
Year/Day(s) ²⁰	1985/18	1984/26	--	1936/24
Years of Record ²¹	1	1	18	87
Precipitation Days ¹³	15	8	13	
Rainfall Days ¹³	--	0	1	
Snowfall Days ¹³	15	8	12	
Total Evaporation ¹⁴ (mm)	--	--	--	
Mean Wind Speed ¹⁵ (km/hr)	13.7	14.1	16.8	
Peak Gust Speed ¹⁶ (km/hr)	82	62	97	
Total Bright Sunshine ¹⁷ (hr)	67.9	82.3	86.0	
Percent Possible Bright Sunshine ¹⁸	28	34	36	
Total Global Radiation ¹⁹ (MJ m ⁻²)	88.6	113.6	96.0	
Total Diffuse Radiation ¹⁹ (MJ m ⁻²)	56.2	66.8	--	
Mean Soil Temperature ²² (°C) (10, 50 cm)	-8.5, -3.7	-7.7, -3.2	-6.6, -1.8	
Mean Soil Temperature ²² (°C) (150, 300 cm)	1.7, 5.2	3.6, 6.4	3.9, 6.2	

SUMMARY:

The mean temperature (-12.6°C) was slightly above normal by 1.3°C. Above normal temperatures were recorded on 19 of 31 days, with maxima ranging from 6° to -19°C. Below normal temperatures were recorded at CRS on 12 of 31 days with minima ranging from -2° to -30.5°C. Although temperatures occasionally dipped to below normal values, they did not reach the record minimum (-43.9°C on the 22nd, 1892).

The monthly precipitation (14.6 mm) recorded at CRS was approximately one half of the normal (25.8 mm). Precipitation consisted of below normal rainfall (T) and snowfall (14.6 cm) amounts. The total annual precipitation of 330.6 mm falls below the 1951-1980 normal (370.5 mm) by 39.9 mm.

Bright sunshine (67.9 hrs) and the mean wind speed (13.7 km/hr) were both below normal values.

Soil temperatures at all levels were slightly below the normal values by 1.0° to 2.2°. Frost has penetrated the soil layer to the 100 cm depth.

December has been a mild and dry month with above normal temperatures and below normal precipitation. The December mean temperature (-12.7°C) was 1.2°C above the normal, and 2.7°C above the November mean temperature. The above normal temperatures for December provided a welcome relief from November's frigid temperatures.

Table 14. Soil Temperature and Snow Cover at Saskatoon SRC, January 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	-8.2	6.5	31	1	15
10	-7.7	7.5	31	5	15
20	-6.9	7.0	31	10	15
50	-5.3	3.5	31	15	14
100	-1.7	0.5	31	20	18
150	0.6	1.5	8	25	18
300	4.4	2.0	0	31	16

Table 15. Soil Temperature and Snow Cover at Saskatoon SRC, February 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	-9.5	7.5	28	1	16
10	-9.0	8.0	28	5	16
20	-8.3	7.5	28	10	21
50	-6.7	3.5	28	15	31
100	-2.8	1.5	28	20	30
150	-0.6	1.0	28	25	32
300	3.1	1.0	0	28	32

Table 16. Soil Temperature and Snow Cover at Saskatoon SRC, March 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	-2.7	7.5	31	1	32
10	-2.3	7.0	31	5	29
20	-2.3	7.0	31	10	30
50	-2.5	5.0	30	15	28
100	-1.3	2.5	31	20	21
150	-0.7	1.0	31	25	16
300	2.0	0.5	0	31	13

Table 17. Soil Temperature and Snow Cover at Saskatoon SRC, April 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	4.2	14.5	9	1	10
10	4.4	13.5	1	5	0
20	3.5	12.0	10	10	0
50	2.1	6.0	1	15	0
100	0.5	3.0	19	20	0
150	0.5	2.0	9	25	0
300	2.0	0.0	0	30	0

(2 cm on 6th)

Table 18. Soil Temperature and Snow Cover at Saskatoon SRC, May 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	12.8	13.0	0	1	0
10	13.1	11.0	0	5	0
20	11.8	8.0	0	10	0
50	9.4	5.5	0	15	0
100	6.5	4.5	0	20	0
150	4.6	4.5	0	25	0
300	3.0	2.0	0	31	0

Table 19. Soil Temperature and Snow Cover at Saskatoon SRC, June 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	15.0	13.0	0	1	0
10	15.1	11.0	0	5	0
20	14.1	7.5	0	10	0
50	12.2	3.5	0	15	0
100	9.4	2.0	0	20	0
150	7.6	2.0	0	25	0
300	5.3	1.5	0	30	0

Table 20. Soil Temperature and Snow Cover at Saskatoon SRC, July 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	20.0	11.5	0	1	0
10	20.0	9.0	0	5	0
20	18.8	6.0	0	10	0
50	16.1	3.5	0	15	0
100	12.5	3.5	0	20	0
150	10.2	5.0	0	25	0
300	7.1	3.5	0	31	0

Table 21. Soil Temperature and Snow Cover at Saskatoon SRC, August 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	17.7	12.0	0	1	0
10	17.6	10.5	0	5	0
20	17.2	6.0	0	10	0
50	16.0	4.0	0	15	0
100	13.3	2.5	0	20	0
150	11.4	0.5	0	25	0
300	8.6	1.0	0	31	0

Table 22. Soil Temperature and Snow Cover at Saskatoon SRC, September 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	10.2	17.0	0	1	0
10	10.5	16.0	0	5	0
20	11.0	12.5	0	10	0
50	12.2	8.5	0	15	0
100	11.6	5.5	0	20	0
150	10.9	2.0	0	25	0
300	9.1	0.5	0	30	0

Table 23. Soil Temperature and Snow Cover at Saskatoon SRC, October 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	4.0	7.0	0	1	0
10	4.5	8.0	0	5	0
20	5.0	6.0	0	10	0
50	7.1	2.5	0	15	0
100	8.1	3.0	0	20	0
150	8.3	2.0	0	25	0
300	8.7	1.5	0	31	0

(5 cm on 17th)

Table 24. Soil Temperature and Snow Cover at Saskatoon SRC, November 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	-6.9	19.0	25	1	0
10	-6.1	19.0	23	5	4
20	-5.0	18.0	22	10	4
50	-2.1	13.5	11	15	3
100	5.1	8.0	0	20	2
150	5.7	3.5	0	25	2
300	7.3	1.5	0	30	4

Table 25. Soil Temperature and Snow Cover at Saskatoon SRC, December 1985.

Depth (cm)	Mean Temp. ($^{\circ}\text{C}$)	Range ($^{\circ}\text{C}$)	Frost Days	Date	Snow Depth (cm)
5	-8.7	12.5	31	1	4
10	-8.5	12.0	31	5	5
20	-7.2	11.0	31	10	7
50	-3.7	5.0	31	15	5
100	-0.2	4.0	26	20	10
150	1.7	2.5	0	25	T*
300	5.2	3.0	0	31	4

*T = trace

Table 26. Diffuse Solar Radiation (MJ m^{-2}) at Saskatoon SRC, 1985.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1.9	2.8	6.3	5.5	M	9.3	5.2	10.4	4.7	5.4	1.2	1.9
2	2.4	2.5	2.8	2.8	8.4	10.0	8.7	7.9	3.6	3.6	3.3	1.7
3	1.2	2.5	7.0	3.9	5.4	10.8	7.8	7.8	5.1	3.3	1.9	1.8
4	1.3	3.4	2.9	6.7	4.9	3.8	5.2	6.1	7.5	2.7	1.7	2.4
5	2.2	4.9	6.0	6.8	3.5	5.7	7.8	9.3	5.8	3.1	2.0	1.8
6	1.3	4.8	3.9	3.3	7.6	7.4	5.9	4.8	5.4	4.5	1.9	2.3
7	1.3	2.9	6.1	2.6	7.9	5.4	5.2	7.5	9.4	4.4	3.5	2.0
8	2.9	2.5	2.8	3.6	4.6	9.7	5.7	5.6	5.5	2.0	4.2	1.9
9	1.7	2.5	2.8	6.5	4.9	8.0	13.3	7.7	5.7	1.9	3.8	1.6
10	2.4	3.1	3.9	3.4	8.2	8.4	9.0	5.9	5.5	1.8	2.5	2.1
11	2.3	2.4	3.3	7.8	6.7	8.0	10.1	3.3	6.7	4.1	3.0	1.7
12	2.1	5.1	3.2	5.9	6.0	7.5	5.1	9.6	5.6	3.7	2.4	2.7
13	2.1	4.7	2.7	3.5	9.6	10.4	6.0	8.1	3.0	4.1	2.4	2.7
14	1.7	5.8	6.6	9.0	3.0	9.2	9.0	6.6	4.8	3.2	2.1	2.2
15	2.3	4.2	2.9	3.0	7.5	9.3	10.5	6.4	4.7	2.1	1.2	1.8
16	2.6	2.7	4.3	2.7	3.5	6.7	6.4	6.9	6.2	2.6	2.1	1.9
17	3.0	5.2	4.2	6.2	3.6	10.7	3.4	9.4	6.2	2.5	4.4	1.3
18	2.2	5.8	2.7	4.3	3.6	5.5	7.6	4.5	3.8	2.3	3.0	1.3
19	1.9	6.0	3.9	3.2	9.4	6.2	9.6	4.8	4.3	3.3	3.2	1.9
20	3.3	4.4	4.4	5.7	8.3	10.3	9.0	7.6	3.4	1.9	5.2	1.7
21	2.5	5.5	4.9	7.3	6.8	12.5	9.0	5.4	4.7	3.8	2.8	2.1
22	2.5	4.6	6.9	6.0	5.8	10.5	8.2	5.3	4.8	3.8	5.1	1.4
23	2.1	5.7	8.2	6.3	7.8	6.5	6.8	4.0	4.6	2.6	2.6	1.1
24	1.8	4.4	7.5	1.5	5.5	11.5	8.8	5.2	5.1	1.1	1.5	1.4
25	2.3	4.7	7.1	8.9	9.0	9.5	5.7	5.0	5.2	2.8	M	1.9
26	3.6	6.5	4.0	6.5	8.4	11.9	10.0	2.9	2.8	2.2	2.3	1.7
27	2.9	5.8	9.1	2.2	9.3	8.2	10.2	3.5	5.1	3.1	2.5	1.6
28	3.5	4.2	4.9	8.1	6.3	5.2	5.4	6.3	5.9	2.0	2.2	1.5
29	3.9		5.8	4.6	8.3	9.1	9.8	6.0	1.8	2.2	1.7	1.4
30	3.6		3.1	7.2	7.6	9.8	5.0	4.9	1.7	2.2	1.7	1.8
31	3.6		5.3		7.6		6.4	7.8		1.2		1.6
Total Diffuse	74.3	119.6	149.3	155.1	199.0	257.0	235.8	196.5	148.6	89.1	77.4	56.2
Total Global	137.7	219.2	423.6	450.0	556.0	613.0	709.8	563.1	324.9	237.8	137.7	88.6

NOTE: M means missing

Table 27. Some Significant Climatic Events, 1985.

		FROST FREE SEASON					
		<u>Last Spring Frost</u>	<u>First Fall Frost</u>		<u>Length of Season</u>		
1985		June 4	September 6		93		
1984		May 24	August 31		98		

		SNOW SEASON							
		<u>Greatest Depth of Snow on Ground (cm)</u>							
		<u>Jan.</u>	<u>Feb.</u>	<u>Mar.</u>	<u>Apr.</u>	<u>May</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>
1985		19	32	33	10	0	5	6	11
1984		7	2	2	1	0	6	5	15

		<u>Cessation¹ of Snow Pack</u>	<u>Last Spring Snowfall</u>	<u>First Fall Snow</u>	<u>Onset² of Snow Pack</u>
1985		April 7	April 16	September 22	November 5
1984		February 21	May 6	September 21	October 16

		WEATHER "SPELLS" ^{3,4}	
		<u>1985</u>	<u>1984</u>
Longest Cool Spell:		19 days, Nov. 16-Dec. 4	28 days, Oct. 15-Nov. 11
Longest Warm Spell:		18 days, Mar. 5-22	45 days, Jan. 22-Mar. 6
Longest Dry Spell:		17 days, Oct. 17-Nov. 2	33 days, Jan. 27-Feb. 28
Longest Wet Spell:		5 days, May 28-June 1	4 days, May 21-24 and June 6-9

1. First day on the first interval of at least 5 days duration in which snow cover is reduced to less than 1 cm depth.
2. First day of the first interval of at least 5 days duration in which snow cover equals or exceeds 1 cm depth.
3. Temperature "spells" are defined as a sequence of days when the daily mean temperature during the year in question is higher (warm spell) or lower (cold spell) than the long-term daily mean for the date in question.
4. Precipitation "spells" are defined as the sequence of days with precipitation amounts greater than trace (wet spells) or precipitation amounts of trace or less (dry spells).

Table 28. Mean Hourly Wind Speed (km/hr) for 16 Compass Points, 1985.

Direction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
N	17.1	11.5	9.9	15.1	12.5	18.9	13.1	13.0	19.4	14.8	18.7	19.8	16.3
NNE	14.5	11.3	13.9	13.9	16.0	12.8	10.9	10.7	11.2	12.2	13.3	12.9	12.8
NE	9.3	11.1	21.0	19.2	12.8	12.0	10.2	11.7	8.8	28.3	9.8	8.0	13.7
ENE	12.6	9.1	14.7	21.2	12.1	16.0	10.5	13.5	5.6	0.0	13.5	10.9	13.9
E	7.6	9.8	12.9	19.4	10.7	13.9	10.5	11.4	7.9	5.0	11.9	6.0	12.0
ESE	6.2	19.5	12.4	12.9	22.5	14.8	9.7	13.1	15.5	16.9	11.0	5.8	14.4
SE	10.4	19.5	16.6	16.2	17.6	14.9	11.7	14.7	19.7	19.6	10.0	13.6	15.7
SSE	9.6	15.6	13.4	14.1	14.1	10.9	12.8	14.9	14.4	13.4	8.3	9.0	13.0
S	8.3	10.9	15.6	11.4	13.1	17.8	11.3	11.3	12.9	12.2	9.3	9.3	12.2
SSW	11.7	12.7	12.4	12.2	11.4	15.0	7.8	8.0	13.5	14.7	9.4	9.9	12.1
SW	13.3	14.1	11.5	21.5	11.9	12.6	7.0	12.1	15.6	16.4	11.7	11.7	14.3
WSW	15.1	15.2	13.1	16.7	13.8	15.0	9.3	9.1	12.9	17.2	9.6	12.2	13.6
W	14.6	10.5	13.4	14.1	13.1	16.6	11.4	11.3	12.6	17.2	10.9	10.9	13.1
WNW	16.7	12.7	15.5	17.3	12.0	18.3	14.5	17.9	13.6	19.9	11.2	17.4	16.0
NW	17.6	13.1	16.5	15.6	16.4	21.7	17.8	19.4	17.1	19.9	11.7	20.8	17.9
NNW	17.5	7.7	9.3	19.2	14.4	17.1	15.3	19.9	17.3	16.2	10.3	20.5	16.1
ALL	13.7	12.9	14.0	16.6	14.2	16.1	12.2	13.6	14.5	16.7	11.2	13.6	14.1

NOTE: Anemometer height is 10 m. Time is from midnight to midnight local time.

Table 29. Percentage Frequency of Winds from 16 Compass Points, 1985.

Direction	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
N	5.9	3.0	1.5	4.3	6.9	6.7	6.5	3.1	8.3	4.1	8.2	5.5	5.3
NNE	6.1	8.9	4.2	5.4	11.2	6.9	9.5	9.0	7.9	4.7	8.0	5.2	7.2
NE	5.8	6.5	6.3	8.3	7.8	4.2	5.3	6.5	2.5	3.1	7.2	2.2	5.5
ENE	2.4	3.4	4.2	6.4	5.1	3.2	2.6	6.4	1.3	0.0	4.7	1.7	3.5
E	2.0	3.6	3.8	3.8	3.2	4.3	1.8	4.0	1.0	0.1	2.9	0.8	2.6
ESE	2.6	5.1	3.7	5.0	7.4	5.4	5.1	9.9	4.9	2.2	2.9	2.3	4.7
SE	3.0	8.0	5.3	7.8	6.1	7.5	7.4	11.0	6.3	8.3	6.0	5.2	6.8
SSE	3.2	5.4	9.7	7.4	5.8	5.1	6.5	7.6	6.8	7.1	2.9	4.3	6.0
S	3.1	4.5	7.5	4.9	7.0	5.7	5.4	3.8	7.5	7.4	6.4	7.5	5.9
SSW	14.1	8.2	12.3	8.1	8.3	6.4	3.9	4.9	14.0	11.5	13.7	14.5	10.1
SW	9.0	6.1	5.7	6.8	3.4	3.5	3.3	3.1	5.4	8.6	5.3	4.6	5.4
WSW	7.7	6.1	7.4	5.7	2.8	4.0	3.7	3.1	3.9	5.2	5.9	5.8	5.1
W	2.8	6.0	8.7	4.4	3.0	3.8	6.1	4.4	2.6	8.3	4.9	6.9	5.1
WNW	12.9	12.6	12.3	11.9	5.4	11.5	15.1	9.6	8.9	15.7	10.6	16.7	11.9
NW	12.8	6.8	4.2	5.0	8.7	12.6	9.6	6.5	9.2	8.1	5.7	10.1	8.3
NNW	5.1	3.6	1.4	3.9	6.4	7.9	6.7	5.8	7.6	3.8	2.9	5.2	5.0
CALM	1.5	2.2	1.8	1.0	1.4	1.3	1.8	1.3	1.8	1.6	2.0	1.5	1.6

NOTE: Anemometer height is 10 m. Time is from midnight to midnight local time.

Figure 1. Year 1985 Daily Temperature and Cumulative Precipitation.

In order to present the maximum length of climatic record for the Saskatoon area, data from several sources have been pooled to produce the historic record shown in this figure. For data sources please refer to Footnotes for Climatic Tables, note 3. The seasons shown are defined on an astronomical basis.

